Madan, Dilip B.; Yor, Marc

Making Markov martingales meet marginals: With explicit constructions. (English)

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Bernoulli 8, No. 4, 509-536 (2002).

This paper presents three generic constructions of martingales that all have the Markov property with known and prespecified marginal densities. These constructions are further investigated for the special case when the prespecified marginals satisfy the scaling property and hence the only datum needed for the construction is the density at unit time. Interesting relations with stochastic orders are presented, along with numerous examples of the resulting martingales.

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MSC:

60G44 Martingales with continuous parameter
60J99 Markov processes

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Azema martingale; convex order; self-similar process; Skorokhod embedding